

**Work Order ID 150039****\*150039\***

Page 1

Tuesday, August 23, 2016 8:12:37 AM

Item ID: D3674-044 Accept **\*N900040100\*** Setup Start **\*NS1\***  
Revision ID: Stop **\*NS2\***  
Item Name: Roller Bracket Assembly  
Start Date: 8/24/2016 Start Qty: 7.00 **\*7\*** Cust Item ID:  
Required Date: 9/2/2016 Req'd Qty: 7.00 **\*7\*** Customer:  
Reference:

Approvals: Process Plan: dem Date: 16/08/23 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

Draw Nbr

Revision Nbr

D3674

REV B

100

**\*100\***

Bandsaw

Jeaspa Bandsaw

BAND SAW

Memo

Cut blanks: (1.500" x 2.250") 5.600" long

0.00

0.01

Da 16/08/297φ68-6  
80  
SVD

110

**\*110\***

HAAS 5AXIS

HAAS CNC vertical machine #5

HAAS CNC VERTICAL MACHINING #1

Memo

1-Machine D3674-4 as per Folio Fb486 and Dwg D3674.

2-Deburr

3-Scribe batch number

0.00

1.17

Da 16/08/307φDAS  
08  
9-89

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |                                                                                                                                                                           |  |
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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |  |  |  |                                                                                                                                                                           |  |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | Step #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  | <b>MRB (QSI042) Approval</b><br><br><br><b>Completed By</b><br><br><br><b>Lead hand / Supervisor Approval Verification</b><br><br><br><b>QC / QA Coordinator Approval</b> |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |                                                                                                                                                                           |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |                                                                                                                                                                           |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |                                                                                                                                                                           |  |
| <b>Root Cause</b><br><div style="display: flex; justify-content: space-between;"> <div>           Environment <input type="checkbox"/><br/>           Design <input type="checkbox"/><br/>           Doc/Data <input type="checkbox"/><br/>           Equip/Tooling <input type="checkbox"/><br/>           Handling/Pre <input type="checkbox"/><br/>           Material <input type="checkbox"/><br/>           Internal Transport <input type="checkbox"/><br/>           Tribal Knowledge <input type="checkbox"/><br/>           LOA <input type="checkbox"/><br/>           Substation <input type="checkbox"/><br/>           Past Expiry Date <input type="checkbox"/><br/>           Misidentified <input type="checkbox"/> </div> <div>           No Re-verification <input type="checkbox"/><br/>           Operator <input type="checkbox"/><br/>           Offset/Setup <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Training <input type="checkbox"/><br/>           Use for Testing <input type="checkbox"/><br/>           Poor Information <input type="checkbox"/><br/>           Rushing <input type="checkbox"/><br/>           Product Improvement <input type="checkbox"/><br/>           Process Improvement <input type="checkbox"/><br/>           Manufacturing Process <input type="checkbox"/><br/>           Past Due <input type="checkbox"/> </div> </div> |  | <div style="display: flex; justify-content: space-between;"> <div>           Pressure/Forced <input type="checkbox"/><br/>           Bending <input type="checkbox"/><br/>           Centre Not Concentric <input type="checkbox"/><br/>           Cracks <input type="checkbox"/><br/>           Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>           Cuffs <input type="checkbox"/><br/>           Crushing <input type="checkbox"/><br/>           Heat Treat <input type="checkbox"/><br/>           Wave/Twist in Tube <input type="checkbox"/><br/>           Marks/Chatter <input type="checkbox"/> </div> <div>           Temperature/Cure <input type="checkbox"/><br/>           Set-up <input type="checkbox"/><br/>           BOM/Route <input type="checkbox"/><br/>           Broken/Damage/Defect <input type="checkbox"/><br/>           Inspection Incomplete/Unqualified <input type="checkbox"/><br/>           Contamination <input type="checkbox"/><br/>           Countersink <input type="checkbox"/><br/>           Cut Too Short <input type="checkbox"/><br/>           Instructions Incomplete/Unclear <input type="checkbox"/><br/>           Drill Holes <input type="checkbox"/> </div> <div>           Power Loss/Surge <input type="checkbox"/><br/>           Folio/Program <input type="checkbox"/><br/>           Grain <input type="checkbox"/><br/>           Weld <input type="checkbox"/><br/>           Wrong Stock Pulled <input type="checkbox"/><br/>           Out of Sequence <input type="checkbox"/><br/>           Off-set <input type="checkbox"/><br/>           Misabeled <input type="checkbox"/><br/>           Fit/Function <input type="checkbox"/><br/>           Misaligned/off center <input type="checkbox"/> </div> <div>           Positioned Wrong <input type="checkbox"/><br/>           Outside Dimensions <input type="checkbox"/><br/>           Over/Under tolerance <input type="checkbox"/><br/>           Part Incorrect <input type="checkbox"/><br/>           Part Lost/Missing <input type="checkbox"/><br/>           Part Moved <input type="checkbox"/><br/>           Drawing <input type="checkbox"/><br/>           Finish <input type="checkbox"/><br/>           Misread <input type="checkbox"/><br/>           Turning Sequence <input type="checkbox"/> </div> </div> |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |                                                                                                                                                                           |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | OTHER : <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |                                                                                                                                                                           |  |

**Work Order ID 150039**

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**\*150039\***

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Item ID: D3674-044 Accept **\*N900040100\*** Setup Start **\*NS1\***  
Revision ID: Stop **\*NS2\***  
Item Name: Roller Bracket Assembly  
Start Date: 8/24/2016 Start Qty: 7.00 **\*7\*** Cust Item ID:  
Required Date: 9/2/2016 Req'd Qty: 7.00 **\*7\*** Customer:  
Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description                | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp    |
|--------------------------------|-----------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|-------------------|
| 120                            | QC2- Inspect parts off machine FAI/FAIB | 0.00                 |         |        |              |               |               |                  | DAS<br>08<br>9-89 |
| <b>*120*</b>                   |                                         |                      |         |        |              |               |               |                  |                   |
| QC                             | Memo                                    | 0.01                 |         |        |              | 7             | 0             |                  |                   |
| Quality Control                |                                         |                      |         |        |              |               |               |                  |                   |
| 130                            | QC8- Inspect parts - second check       | 0.00                 |         |        |              |               |               |                  |                   |
| <b>*130*</b>                   |                                         |                      |         |        |              | 7             |               |                  | 16-9-6            |
| QC                             | Memo                                    | 0.02                 |         |        |              |               |               |                  |                   |
| Quality Control                |                                         |                      |         |        |              |               |               |                  |                   |
| 140                            | Small Fab                               | 0.00                 |         |        |              |               |               |                  |                   |
| <b>*140*</b>                   |                                         |                      |         |        |              |               |               |                  |                   |
| Small Fab                      | Memo                                    | 0.06                 |         |        |              | 7x            |               |                  | 16/09/12          |
| Small Fab                      | Assemble D3674-043 as per Dwg D3674.    |                      |         |        |              |               |               |                  | DAS<br>36<br>9-89 |



DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                      | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>             Skid-tube <input type="checkbox"/><br/>             Machining <input type="checkbox"/><br/>             Thermoforming <input type="checkbox"/><br/>             Large Fab <input type="checkbox"/> </div> <div>             Cross tube <input type="checkbox"/><br/>             Small Fab <input type="checkbox"/><br/>             Finishing <input type="checkbox"/><br/>             Composite <input type="checkbox"/> </div> <div>             Water Jet <input type="checkbox"/><br/>             Prod. Eng. Coord. <input type="checkbox"/><br/>             Rec/Store/Packaging <input type="checkbox"/><br/>             Supplier <input type="checkbox"/> </div> <div>             Engineering <input type="checkbox"/><br/>             Quality <input type="checkbox"/><br/>             Other <input type="checkbox"/> </div> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Step #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | MRB (QSI042) Approval                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Completed By                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Lead hand / Supervisor Approval Verification                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | QC / QA Coordinator Approval                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Root Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | FAULT CATEGORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Environment <input type="checkbox"/><br>Design <input type="checkbox"/><br>Doc/Data <input type="checkbox"/><br>Equip/Tooling <input type="checkbox"/><br>Handling/Pre <input type="checkbox"/><br>Material <input type="checkbox"/><br>Internal Transport <input type="checkbox"/><br>Tribal Knowledge <input type="checkbox"/><br>LOA <input type="checkbox"/><br>Substation <input type="checkbox"/><br>Past Expiry Date <input type="checkbox"/><br>Misidentified <input type="checkbox"/> | No Re-verification <input type="checkbox"/><br>Operator <input type="checkbox"/><br>Offset/Setup <input type="checkbox"/><br>Supplier <input type="checkbox"/><br>Training <input type="checkbox"/><br>Use for Testing <input type="checkbox"/><br>Poor Information <input type="checkbox"/><br>Rushing <input type="checkbox"/><br>Product Improvement <input type="checkbox"/><br>Process Improvement <input type="checkbox"/><br>Manufacturing Process <input type="checkbox"/><br>Past Due <input type="checkbox"/> | Pressure/Forced <input type="checkbox"/><br>Bending <input type="checkbox"/><br>Centre Not Concentric <input type="checkbox"/><br>Cracks <input type="checkbox"/><br>Crimp/Kink/Ripple/Wave <input type="checkbox"/><br>Cuffs <input type="checkbox"/><br>Crushing <input type="checkbox"/><br>Heat Treat <input type="checkbox"/><br>Wave/Twist in Tube <input type="checkbox"/><br>Marks/Chatter <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Temperature/Cure <input type="checkbox"/><br>Set-up <input type="checkbox"/><br>BOM/Route <input type="checkbox"/><br>Broken/Damage/Defect <input type="checkbox"/><br>Inspection Incomplete/Unqualified <input type="checkbox"/><br>Contamination <input type="checkbox"/><br>Countersink <input type="checkbox"/><br>Cut Too Short <input type="checkbox"/><br>Instructions Incomplete/Unclear <input type="checkbox"/><br>Drill Holes <input type="checkbox"/> | Power Loss/Surge <input type="checkbox"/><br>Folio/Program <input type="checkbox"/><br>Grain <input type="checkbox"/><br>Weld <input type="checkbox"/><br>Wrong Stock Pulled <input type="checkbox"/><br>Out of Sequence <input type="checkbox"/><br>Off-set <input type="checkbox"/><br>Mislabeled <input type="checkbox"/><br>Fit/Function <input type="checkbox"/><br>Misaligned/off center <input type="checkbox"/> | Positioned Wrong <input type="checkbox"/><br>Outside Dimensions <input type="checkbox"/><br>Over/Under tolerance <input type="checkbox"/><br>Part Incorrect <input type="checkbox"/><br>Part Lost/Missing <input type="checkbox"/><br>Part Moved <input type="checkbox"/><br>Drawing <input type="checkbox"/><br>Finish <input type="checkbox"/><br>Misread <input type="checkbox"/><br>Turning Sequence <input type="checkbox"/> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | OTHER :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                   |

**Work Order ID 150039**

Tuesday, August 23, 2016 8:12:37 AM

**\*150039\***

Page 3

Item ID: D3674-044

Accept

**\*N900040100\***

Setup Start

**\*NS1\***

Revision ID:

Stop

**\*NS2\***

Item Name: Roller Bracket Assembly

Start Date: 8/24/2016 Start Qty: 7.00

**\*7\***

Cust Item ID:

Required Date: 9/2/2016 Req'd Qty: 7.00

**\*7\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

**\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

**\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description                           | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp                   |
|--------------------------------|----------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------------------------|
| 150                            | QC5- Inspect part completeness to step on W/O      | 0.00                 |         |        |              |               |               |                  |                                  |
| <b>*150*</b>                   |                                                    |                      |         |        |              |               |               |                  |                                  |
| QC                             | Memo                                               | 0.02                 |         |        |              | 7             |               |                  | DAS<br>38<br>9-89<br>SEP 13 2016 |
| Quality Control                |                                                    |                      |         |        |              |               |               |                  |                                  |
| 160                            | Identify as per dwg & Stock Location: <u>Sto50</u> | 0.00                 |         |        |              |               |               |                  |                                  |
| <b>*160*</b>                   |                                                    |                      |         |        |              |               |               |                  |                                  |
| Packaging                      | Memo                                               | 0.01                 |         |        |              |               |               |                  | 7 SEP 13 2016 806                |
| Packaging                      |                                                    |                      |         |        |              |               |               |                  |                                  |
| 170                            | QC21- Final Inspection - Work Order Release        | 0.00                 |         |        |              |               |               |                  |                                  |
| <b>*170*</b>                   |                                                    |                      |         |        |              |               |               |                  |                                  |
| QC                             | Memo                                               | 0.12                 |         |        |              |               |               |                  | 16/9/13 JG                       |
| Quality Control                |                                                    |                      |         |        |              |               |               |                  | DAS<br>21<br>9-89<br>SEP 13 2016 |

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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|--------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ |                                                | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |                                                            | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>             Skid-tube <input type="checkbox"/><br/>             Machining <input type="checkbox"/><br/>             Thermoforming <input type="checkbox"/><br/>             Large Fab <input type="checkbox"/> </div> <div>             Cross tube <input type="checkbox"/><br/>             Small Fab <input type="checkbox"/><br/>             Finishing <input type="checkbox"/><br/>             Composite <input type="checkbox"/> </div> <div>             Water Jet <input type="checkbox"/><br/>             Prod. Eng. Coord. <input type="checkbox"/><br/>             Rec/Store/Packaging <input type="checkbox"/><br/>             Supplier <input type="checkbox"/> </div> <div>             Engineering <input type="checkbox"/><br/>             Quality <input type="checkbox"/><br/>             Other <input type="checkbox"/> </div> </div> |                                               |  |  |                                                                                                                                                               |  |
| Date :                                                       |                                                | Step #:                                                                                                                                                                            |                                                            | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |  | <b>MRB (QSI042) Approval</b><br><br><b>Completed By</b><br><br><b>Lead hand / Supervisor Approval Verification</b><br><br><b>QC / QA Coordinator Approval</b> |  |
| <b>Description Work Order Deviation</b>                      |                                                |                                                                                                                                                                                    |                                                            | <b>Disposition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                               |  |  |                                                                                                                                                               |  |
|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |  |                                                                                                                                                               |  |
|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |  |                                                                                                                                                               |  |
| <b>Root Cause</b>                                            |                                                | <b>FAULT CATEGORY</b>                                                                                                                                                              |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |  |                                                                                                                                                               |  |
| Environment <input type="checkbox"/>                         | No Re-verification <input type="checkbox"/>    | Pressure/Forced <input type="checkbox"/>                                                                                                                                           | Temperature/Cure <input type="checkbox"/>                  | Power Loss/Surge <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Positioned Wrong <input type="checkbox"/>     |  |  |                                                                                                                                                               |  |
| Design <input type="checkbox"/>                              | Operator <input type="checkbox"/>              | Bending <input type="checkbox"/>                                                                                                                                                   | Set-up <input type="checkbox"/>                            | Folio/Program <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Outside Dimensions <input type="checkbox"/>   |  |  |                                                                                                                                                               |  |
| Doc/Data <input type="checkbox"/>                            | Offset/Setup <input type="checkbox"/>          | Centre Not Concentric <input type="checkbox"/>                                                                                                                                     | BOM/Route <input type="checkbox"/>                         | Grain <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Over/Under tolerance <input type="checkbox"/> |  |  |                                                                                                                                                               |  |
| Equip/Tooling <input type="checkbox"/>                       | Supplier <input type="checkbox"/>              | Cracks <input type="checkbox"/>                                                                                                                                                    | Broken/Damage/Defect <input type="checkbox"/>              | Weld <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Part Incorrect <input type="checkbox"/>       |  |  |                                                                                                                                                               |  |
| Handling/Pre <input type="checkbox"/>                        | Training <input type="checkbox"/>              | Crimp/Kink/Ripple/Wave <input type="checkbox"/>                                                                                                                                    | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Part Lost/Missing <input type="checkbox"/>    |  |  |                                                                                                                                                               |  |
| Material <input type="checkbox"/>                            | Use for Testing <input type="checkbox"/>       | Cuffs <input type="checkbox"/>                                                                                                                                                     | Contamination <input type="checkbox"/>                     | Out of Sequence <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Part Moved <input type="checkbox"/>           |  |  |                                                                                                                                                               |  |
| Internal Transport <input type="checkbox"/>                  | Poor Information <input type="checkbox"/>      | Crushing <input type="checkbox"/>                                                                                                                                                  | Countersink <input type="checkbox"/>                       | Off-set <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Drawing <input type="checkbox"/>              |  |  |                                                                                                                                                               |  |
| Tribal Knowledge <input type="checkbox"/>                    | Rushing <input type="checkbox"/>               | Heat Treat <input type="checkbox"/>                                                                                                                                                | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Finish <input type="checkbox"/>               |  |  |                                                                                                                                                               |  |
| LOA <input type="checkbox"/>                                 | Product Improvement <input type="checkbox"/>   | Wave/Twist in Tube <input type="checkbox"/>                                                                                                                                        | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Misread <input type="checkbox"/>              |  |  |                                                                                                                                                               |  |
| Substation <input type="checkbox"/>                          | Process Improvement <input type="checkbox"/>   | Marks/Chatter <input type="checkbox"/>                                                                                                                                             | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Turning Sequence <input type="checkbox"/>     |  |  |                                                                                                                                                               |  |
| Past Expiry Date <input type="checkbox"/>                    | Manufacturing Process <input type="checkbox"/> | <b>OTHER :</b>                                                                                                                                                                     |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |  |                                                                                                                                                               |  |
| Misidentified <input type="checkbox"/>                       | Past Due <input type="checkbox"/>              |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |  |                                                                                                                                                               |  |



# Picklist Print

Tuesday, August 23, 2016 8:12:36 AM

Page 1

Work Order ID: 150039

**\*150039\***

Parent Item: D3674-044

**\*D3674-044\***

Parent Item Name: Roller Bracket Assembly

Start Date: 8/24/2016

Required Date: 9/2/2016

Start Qty: 7.00

Required Qty: 7.00

Comments: IPP REV:A NEW ISSUE 17-07-29 JLM VERIFIED BY:DD

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand | Qty per Kit | Total<br>Qty | Qty<br>Issued | Date<br>Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|

|                   |  |              |    |  |  |  |      |         |           |    |  |          |             |
|-------------------|--|--------------|----|--|--|--|------|---------|-----------|----|--|----------|-------------|
| D3121-21          |  | Manufactured | No |  |  |  | Each | 59.0000 |           | 14 |  |          |             |
| <b>*D3121-21*</b> |  |              |    |  |  |  |      |         | <b>**</b> |    |  | 16/09/12 | DAS 36 9-89 |
| Bolt              |  |              |    |  |  |  |      |         |           |    |  |          |             |

| Location | Loc Qty | Loc Code |
|----------|---------|----------|
| ST018    | 59      |          |
| 147276   | 18      |          |
| 148148   | 41      |          |

|                    |  |              |    |  |  |  |      |         |           |    |  |          |             |
|--------------------|--|--------------|----|--|--|--|------|---------|-----------|----|--|----------|-------------|
| D3183-045          |  | Manufactured | No |  |  |  | Each | 27.0000 |           | 14 |  |          |             |
| <b>*D3183-045*</b> |  |              |    |  |  |  |      |         | <b>**</b> |    |  | 16/09/12 | DAS 36 9-89 |
| Bearing Assembly   |  |              |    |  |  |  |      |         |           |    |  |          |             |

| Location | Loc Qty | Loc Code |
|----------|---------|----------|
| FG       | 4       |          |
| 139821   | 2       |          |
| 141815   | 2       |          |
| ST021    | 23      |          |
| 149953   | 23      |          |

|                            |  |           |    |  |  |  |   |        |           |          |  |          |  |
|----------------------------|--|-----------|----|--|--|--|---|--------|-----------|----------|--|----------|--|
| M174B1.500X02.250          |  | Purchased | No |  |  |  | f | 4.4170 |           | 3.433684 |  |          |  |
| <b>*M174B1 500X02 250*</b> |  |           |    |  |  |  |   |        | <b>**</b> |          |  | 16/08/30 |  |
| 17-4 SS Bar 1.50 X2.250    |  |           |    |  |  |  |   |        |           |          |  |          |  |

| Location | Loc Qty | Loc Code |
|----------|---------|----------|
| MAT010   | 4.417   |          |
| m133511  | 4.417   |          |

M 17-4 B 2.000" x 1.250" → M 127454

M 17-4 B 1.500" x 2.250" → M 128572

M 17-4 B 2.000" x 1.500" → M 113189

0.5610 ft

2.442 ft

0.4833 ft

0.6625 ft

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

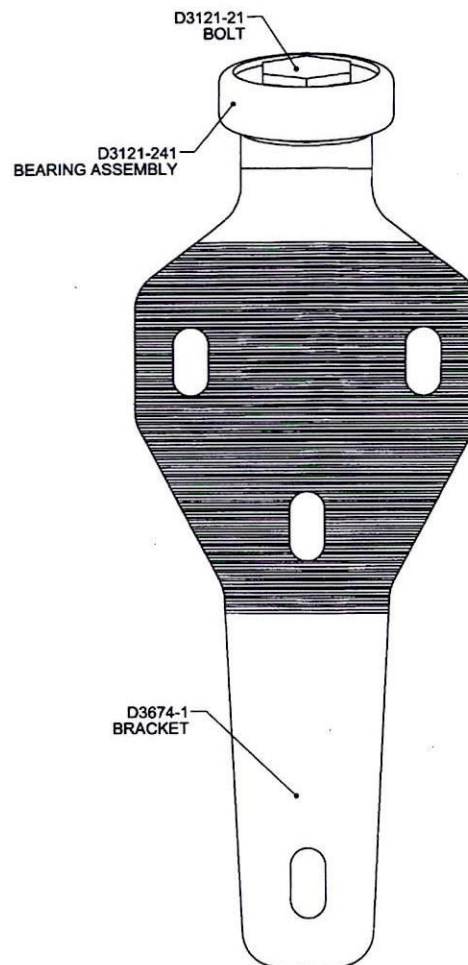
QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                               |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                |  | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                               |  |  |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Step #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>MRB (QSI042) Approval</b><br><br><b>Completed By</b><br><br><b>Lead hand / Supervisor Approval Verification</b><br><br><b>QC / QA Coordinator Approval</b> |  |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                               |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                               |  |  |
| <b>Root Cause</b><br><br><div style="display: flex;"> <div style="width: 50%;">           Environment <input type="checkbox"/><br/>           Design <input type="checkbox"/><br/>           Doc/Data <input type="checkbox"/><br/>           Equip/Tooling <input type="checkbox"/><br/>           Handling/Pre <input type="checkbox"/><br/>           Material <input type="checkbox"/><br/>           Internal Transport <input type="checkbox"/><br/>           Tribal Knowledge <input type="checkbox"/><br/>           LOA <input type="checkbox"/><br/>           Substation <input type="checkbox"/><br/>           Past Expiry Date <input type="checkbox"/><br/>           Misidentified <input type="checkbox"/> </div> <div style="width: 50%;">           No Re-verification <input type="checkbox"/><br/>           Operator <input type="checkbox"/><br/>           Offset/Setup <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Training <input type="checkbox"/><br/>           Use for Testing <input type="checkbox"/><br/>           Poor Information <input type="checkbox"/><br/>           Rushing <input type="checkbox"/><br/>           Product Improvement <input type="checkbox"/><br/>           Process Improvement <input type="checkbox"/><br/>           Manufacturing Process <input type="checkbox"/><br/>           Past Due <input type="checkbox"/> </div> </div> |  | <b>Pressure/Forced</b> <input type="checkbox"/><br><b>Bending</b> <input type="checkbox"/><br><b>Centre Not Concentric</b> <input type="checkbox"/><br><b>Cracks</b> <input type="checkbox"/><br><b>Crimp/Kink/Ripple/Wave</b> <input type="checkbox"/><br><b>Cuffs</b> <input type="checkbox"/><br><b>Crushing</b> <input type="checkbox"/><br><b>Heat Treat</b> <input type="checkbox"/><br><b>Wave/Twist in Tube</b> <input type="checkbox"/><br><b>Marks/Chatter</b> <input type="checkbox"/> |  | <b>FAULT CATEGORY</b><br><br><div style="display: flex;"> <div style="width: 50%;">           Temperature/Cure <input type="checkbox"/><br/>           Set-up <input type="checkbox"/><br/>           BOM/Route <input type="checkbox"/><br/>           Broken/Damage/Defect <input type="checkbox"/><br/>           Inspection Incomplete/Unqualified <input type="checkbox"/><br/>           Contamination <input type="checkbox"/><br/>           Countersink <input type="checkbox"/><br/>           Cut Too Short <input type="checkbox"/><br/>           Instructions Incomplete/Unclear <input type="checkbox"/><br/>           Drill Holes <input type="checkbox"/> </div> <div style="width: 50%;">           Power Loss/Surge <input type="checkbox"/><br/>           Folio/Program <input type="checkbox"/><br/>           Grain <input type="checkbox"/><br/>           Weld <input type="checkbox"/><br/>           Wrong Stock Pulled <input type="checkbox"/><br/>           Out of Sequence <input type="checkbox"/><br/>           Off-set <input type="checkbox"/><br/>           Mislabeled <input type="checkbox"/><br/>           Fit/Function <input type="checkbox"/><br/>           Misaligned/off center <input type="checkbox"/> </div> </div> |  | <div style="display: flex;"> <div style="width: 50%;">           Positioned Wrong <input type="checkbox"/><br/>           Outside Dimensions <input type="checkbox"/><br/>           Over/Under tolerance <input type="checkbox"/><br/>           Part Incorrect <input type="checkbox"/><br/>           Part Lost/Missing <input type="checkbox"/><br/>           Part Moved <input type="checkbox"/><br/>           Drawing <input type="checkbox"/><br/>           Finish <input type="checkbox"/><br/>           Misread <input type="checkbox"/><br/>           Turning Sequence <input type="checkbox"/> </div> <div style="width: 50%;"> <b>OTHER :</b> <input type="checkbox"/> </div> </div> |                                                                                                                                                               |  |  |



| ITEM | QTY<br>-041 | P/N       | DESCRIPTION             |
|------|-------------|-----------|-------------------------|
|      | X           | D3674-041 | ROLLER BRACKET ASSEMBLY |
| 1    | 1           | D3674-1   | BRACKET                 |
| 2    | 1           | D3121-21  | BOLT                    |
| 3    | 1           | D3121-241 | BEARING ASSEMBLY        |



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SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 150039

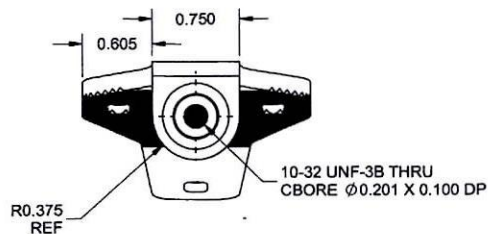
NOTES:  
1) MATERIAL: N/A  
2) FINISH :NONE  
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED  
4) UNITS: INCHES UNLESS OTHERWISE NOTED  
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX  
6) IDENTIFICATION: N/A  
7) WEIGHT: 0.31 lbs  
8) TORQUE D3121-21 BOLT 15-25 in lbs (1.7-2.8 Nm)

**D3674-041 ROLLER BRACKET ASSEMBLY**

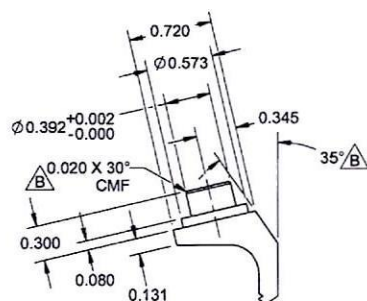
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2016-07-26  
EW 46-531

APPROVED

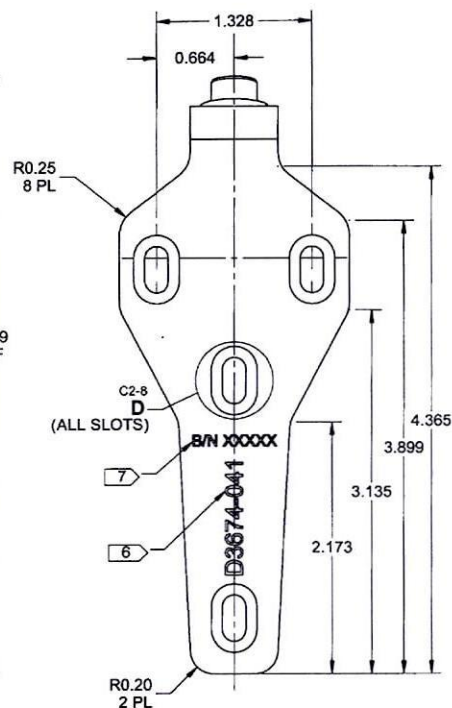
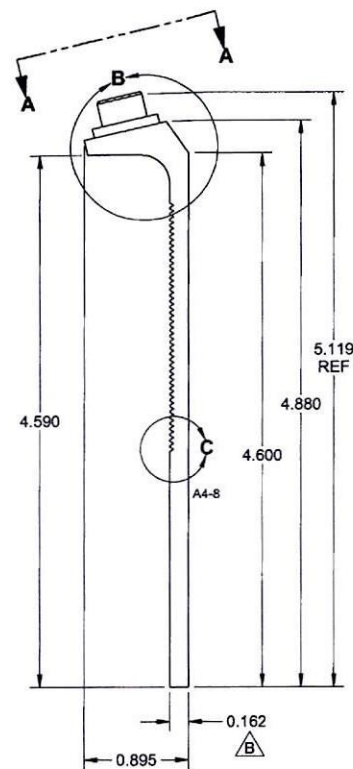
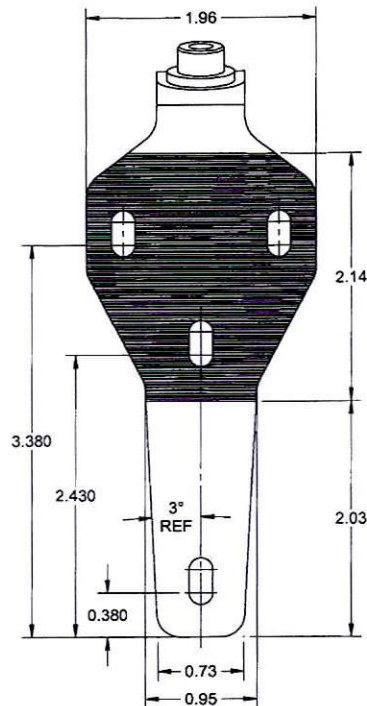
|            |                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                 |     |              |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------|
| B          | GENERAL UPDATE TO CURRENT STANDARDS.<br>ADD -3A-37/81-043/044/045 FOR BELL COMPOSITE<br>DOOR. B3-2 DIM 0.162 WAS 0.130. B7-2 35° WAS 30°. SHT 2<br>UPDATE NOTE 6. SEE PAR 16-501. |                                                                                                                                                                                                                                                                                                 | AJS | 16.06.01     |
| A          | NEW ISSUE                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                 | AJS | 08.03.26     |
| REV.       | DESCRIPTION                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                 | BY  | DATE         |
| DESIGN     | AJS                                                                                                                                                                               | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                        |     |              |
| DRAWN      | AJS                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                 |     |              |
| CHECKED    | MB                                                                                                                                                                                | DRAWING NO.                                                                                                                                                                                                                                                                                     |     | REV. B       |
| MFG. APPR. | RQ                                                                                                                                                                                | D3674                                                                                                                                                                                                                                                                                           |     | SHEET 1 OF 8 |
| APPROVED   | WM                                                                                                                                                                                | TITLE                                                                                                                                                                                                                                                                                           |     | SCALE        |
| DE APPR.   | DS                                                                                                                                                                                | ROLLER BRACKET ASSEMBLY                                                                                                                                                                                                                                                                         |     | NTS          |
| DATE       | 16.06.01                                                                                                                                                                          | <small>COPYRIGHT © 2008 BY DART AEROSPACE LTD<br/>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS<br/>NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT<br/>WRITTEN PERMISSION FROM DART AEROSPACE LTD</small> |     |              |



**VIEW A-A**



**DETAIL B**



**D3674-1 BRACKET**

**NOTES:**

- 1) MATERIAL: 17-4 PH. STAINLESS STEEL BAR  
PER AMS 5604/5643  
GRAIN DIRECTION MUST BE ALONG THE LENGTH OF THE BRACKET  
MINIMUM YIELD TENSILE STRENGTH = 100 ksi  
MINIMUM ULTIMATE TENSILE STRENGTH = 150 ksi  
REF. DART SPEC. M17-4-B
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: ENGRAVE WITH DART P/N "D3674-041" WITH 0.15 HIGH LETTERS TO A  
MAX DEPTH OF 0.010 IN AREA SHOWN.
- 7) IDENTIFICATION: SCRIBE B/N PER QSI 044 6.4
- 8) WEIGHT: 0.27 lbs
- 9) BASIC PROFILE OF D3674-1 BRACKET TAKEN FROM D3121-141 REF.
- 10) ALL NON DIMENSIONED FEATURES PER CAD FILE "D3674-1RevB.STP/SLDPRT"

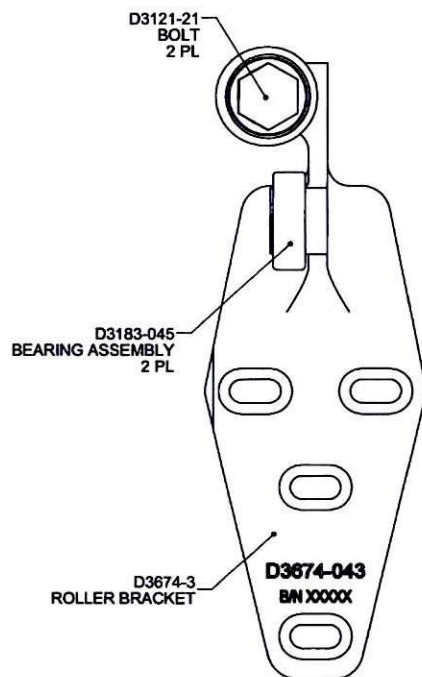
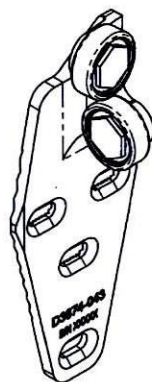
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2016-07-26

APPROVED

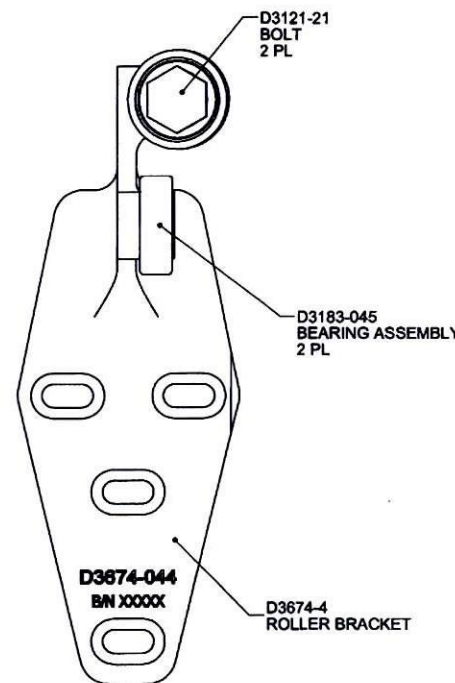
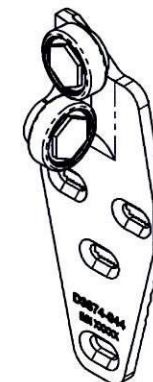
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------|--------------|
| DESIGN                                                                                                                                                                                                  | AJS      | <b>DART AEROSPACE LTD</b>              |              |
| DRAWN                                                                                                                                                                                                   | AJS      | HAWKESBURY, ONTARIO, CANADA            |              |
| CHECKED                                                                                                                                                                                                 | MB       | DRAWING NO.                            | REV. B       |
| MFG. APPR.                                                                                                                                                                                              | RQ       | D3674                                  | SHEET 2 OF 8 |
| APPROVED                                                                                                                                                                                                | WM       | TITLE                                  | SCALE        |
| DE APPR.                                                                                                                                                                                                | DS       | <b>ROLLER BRACKET ASSEMBLY</b>         |              |
| DATE                                                                                                                                                                                                    | 16.06.01 | COPYRIGHT © 2008 BY DART AEROSPACE LTD |              |
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| ITEM | QTY | P/N       | DESCRIPTION             |
|------|-----|-----------|-------------------------|
|      | X   | D3674-043 | ROLLER BRACKET ASSEMBLY |
| 1    | 1   | D3674-3   | ROLLER BRACKET          |
| 2    | 2   | D3183-045 | BEARING ASSEMBLY        |
| 3    | 2   | D3121-21  | BOLT                    |

| ITEM | QTY | P/N       | DESCRIPTION             |
|------|-----|-----------|-------------------------|
|      | X   | D3674-044 | ROLLER BRACKET ASSEMBLY |
| 1    | 1   | D3674-4   | ROLLER BRACKET          |
| 2    | 2   | D3183-045 | BEARING ASSEMBLY        |
| 3    | 2   | D3121-21  | BOLT                    |



**D3674-043 ROLLER BRACKET ASSEMBLY**



**D3674-044 ROLLER BRACKET ASSEMBLY**

**NOTES:**

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.37 lbs
- 8) TORQUE D3121-21 BOLT 15-25 in lbs (1.7-2.8 Nm)

|            |          |                                                                                                                                                                                                                                                                                           |              |
|------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| DESIGN     | AJS      | <b>DART AEROSPACE LTD</b>                                                                                                                                                                                                                                                                 |              |
| DRAWN      | AJS      | HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                                               |              |
| CHECKED    | MB       | DRAWING NO.                                                                                                                                                                                                                                                                               | REV. B       |
| MFG. APPR. | RQ       | D3674                                                                                                                                                                                                                                                                                     | SHEET 3 OF 8 |
| APPROVED   | WM       | TITLE                                                                                                                                                                                                                                                                                     | SCALE        |
| DE APPR.   | DS       | ROLLER BRACKET ASSEMBLY                                                                                                                                                                                                                                                                   | NTS          |
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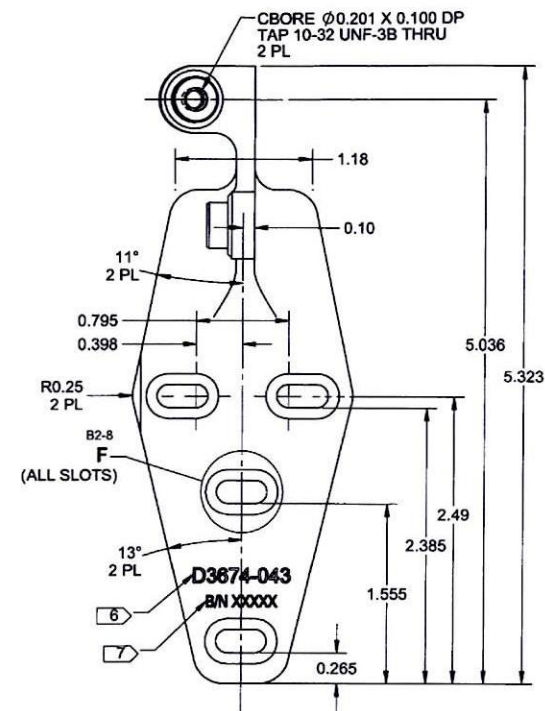
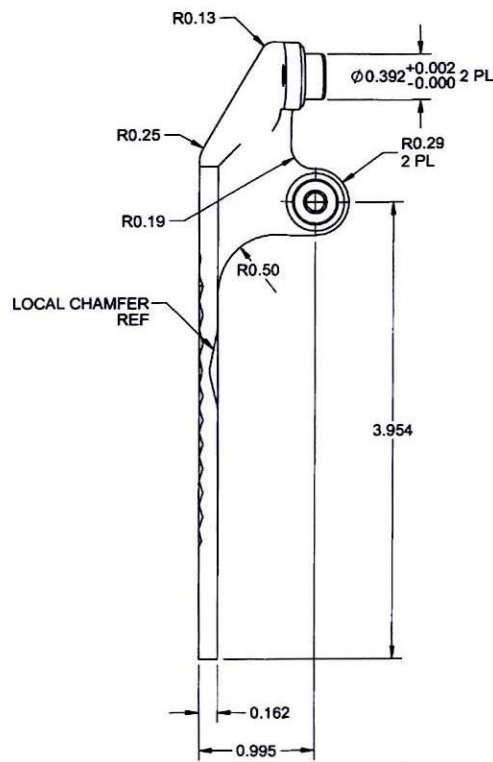
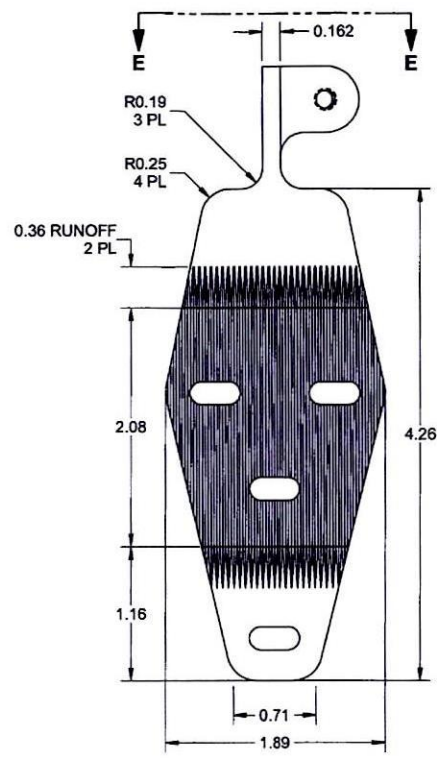
8 7 6 5 4 3 2 1

D

C

B

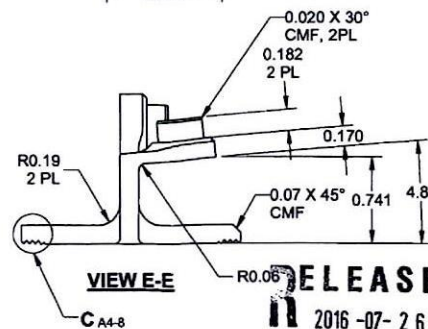
A



**D3674-3 ROLLER BRACKET**  $\triangle$  B

**NOTES:**

- 1) MATERIAL: 17-4 PH, STAINLESS STEEL BAR  
PER AMS 5604/5643  
GRAIN DIRECTION MUST BE ALONG THE LENGTH OF THE BRACKET  
MINIMUM YIELD TENSILE STRENGTH = 100 ksi  
MINIMUM ULTIMATE TENSILE STRENGTH = 150 ksi  
REF. DART SPEC. M17-4-B
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: ENGRAVE WITH DART P/N "D3674-043" WITH 0.15 HIGH LETTERS TO A  
MAX DEPTH OF 0.010 IN AREA SHOWN.
- 7) IDENTIFICATION: SCRIBE B/N PER QSI 044 6.4
- 8) WEIGHT: 0.31 lbs
- 9) ALL NON DIMENSIONED FEATURES PER CAD FILE "D3674-3RevB.STP/SLDPRT"



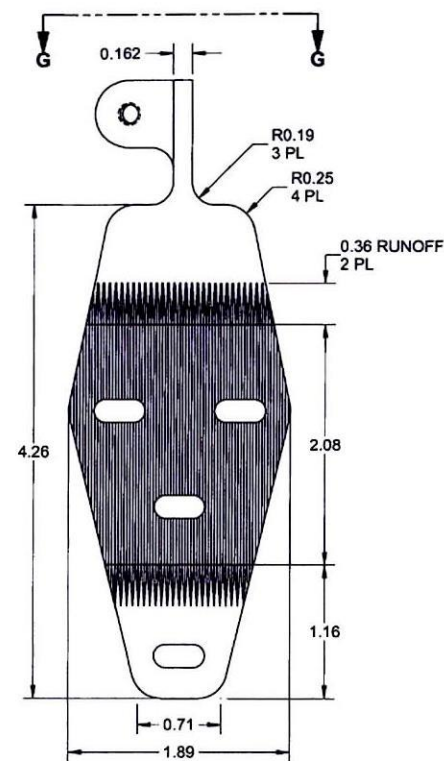
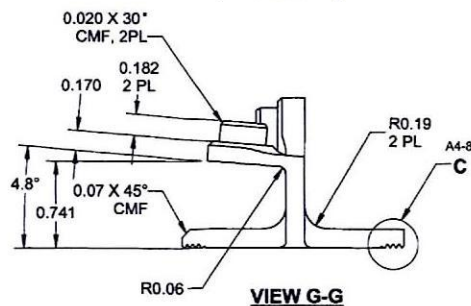
**VIEW E-E**

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|            |          |                                                                                                                                                                                                                                                                              |              |
|------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| DESIGN     | AJS      | <b>DART AEROSPACE LTD</b>                                                                                                                                                                                                                                                    |              |
| DRAWN      | AJS      | HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                                  |              |
| CHECKED    | MB       | DRAWING NO.                                                                                                                                                                                                                                                                  | REV. B       |
| MFG. APPR. | RQ       | <b>D3674</b>                                                                                                                                                                                                                                                                 | SHEET 4 OF 8 |
| APPROVED   | WM       | TITLE                                                                                                                                                                                                                                                                        | SCALE        |
| DE APPR.   | DS       | <b>ROLLER BRACKET ASSEMBLY</b>                                                                                                                                                                                                                                               | NTS          |
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8 7 6 5 4 3 2 1



NOTES:  
1) MATERIAL: 17-4 PH, STAINLESS STEEL BAR  
PER AMS 5604/5643  
GRAIN DIRECTION MUST BE ALONG THE LENGTH OF THE BRACKET  
MINIMUM YIELD TENSILE STRENGTH = 100 ksi  
MINIMUM ULTIMATE TENSILE STRENGTH = 150 ksi  
REF. DART SPEC. M17-4-B

- 2) FINISH: NONE  
3) TOLERANCES: PER DART Q31 018 UNLESS OTHERWISE NOTED  
4) UNITS: INCHES UNLESS OTHERWISE NOTED  
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX  
6) IDENTIFICATION: ENGRAVE WITH DART P/N "D3674-044" WITH 0.15 HIGH LETTERS TO A  
MAX DEPTH OF 0.010 IN AREA SHOWN.  
7) IDENTIFICATION: SCRIBE B/N PER Q31 044 6.4  
8) WEIGHT: 0.31 lbs  
9) ALL NON DIMENSIONED FEATURES PER CAD FILE "D3674-4RevB.STP/SLDPRT"

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|            |          |                                                                                                                                                                                                                         |              |
|------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| DESIGN     | AJS      | <b>DART AEROSPACE LTD</b>                                                                                                                                                                                               |              |
| DRAWN      | AJS      | HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                             |              |
| CHECKED    | MB       | DRAWING NO.                                                                                                                                                                                                             | REV. B       |
| MFG. APPR. | WM       | <b>D3674</b>                                                                                                                                                                                                            | SHEET 5 OF 5 |
| APPROVED   | RQ       | TITLE                                                                                                                                                                                                                   | SCALE        |
| DE APPR.   | DS       | <b>ROLLER BRACKET ASSEMBLY</b> NTS                                                                                                                                                                                      |              |
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| ITEM | QTY<br>-045 | P/N          | DESCRIPTION             |
|------|-------------|--------------|-------------------------|
|      | X           | D3674-045    | ROLLER BRACKET ASSEMBLY |
| 1    | 1           | D3674-5      | ROLLER BRACKET          |
| 2    | 1           | D3674-7      | GUIDE                   |
| 3    | 1           | D3137-5      | WASHER                  |
| 4    | 1           | MS24694-S100 | SCREW, CSK 100°         |

D3674-5  
ROLLER BRACKET

D3674-045  
B/N XXXXX

D3674-7  
GUIDE  
D3137-5  
WASHER

MS24694-S100  
SCREW, CSK 100°

# **D3674-045 ROLLER BRACKET ASSEMBLY**

## **NOTES:**

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.26 lbs
- 8) TORQUE MS24694-S100 BOLT 50-70 in lbs (5.6-7.9 Nm)

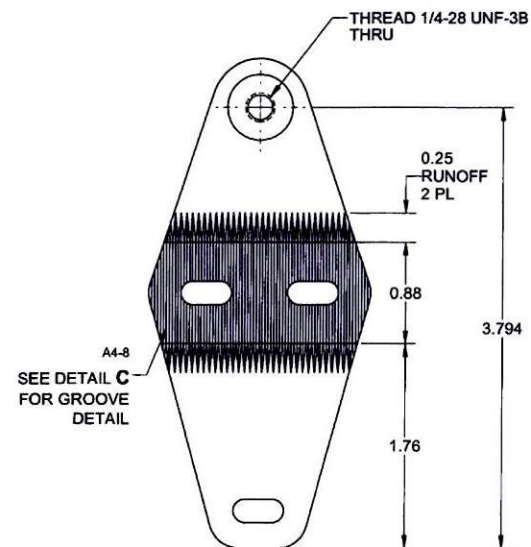
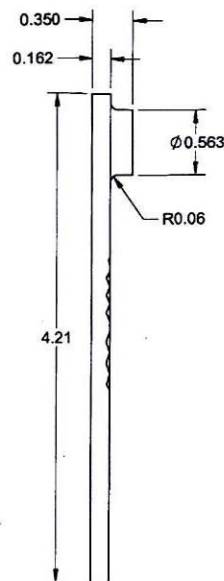
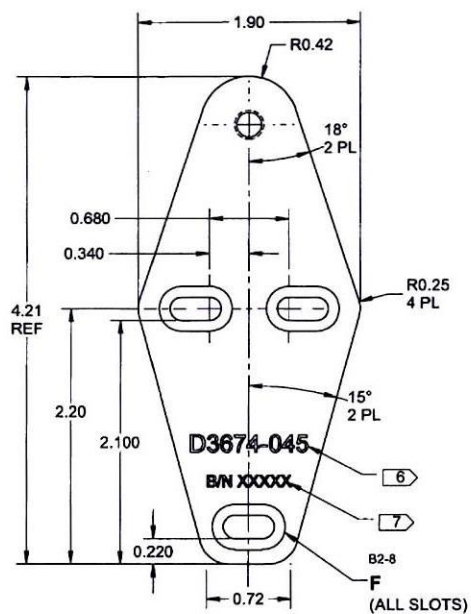
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|            |          |                                                   |
|------------|----------|---------------------------------------------------|
| DESIGN     | AJS      | DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA |
| DRAWN      | AJS      |                                                   |
| CHECKED    | MB       | DRAWING NO.                                       |
| MFG. APPR. | RQ       | D3674                                             |
| APPROVED   | WM       | TITLE                                             |
| DE APPR.   | DS       | ROLLER BRACKET ASSEMBLY                           |
| DATE       | 16.06.01 | SCALE                                             |
|            |          | NTS                                               |

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**D3674-5 ROLLER BRACKET** B

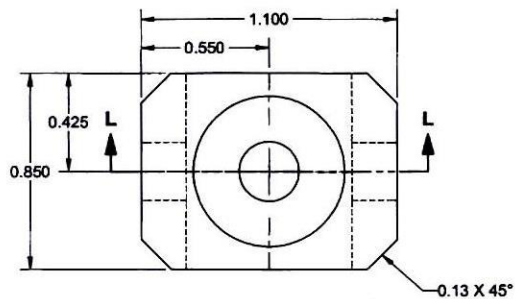
**NOTES:**

- 1) MATERIAL: 17-4 PH, STAINLESS STEEL BAR  
PER AMS 5604/5643  
GRAIN DIRECTION MUST BE ALONG THE LENGTH OF THE BRACKET  
MINIMUM YIELD TENSILE STRENGTH = 100 ksi  
MINIMUM ULTIMATE TENSILE STRENGTH = 150 ksi  
REF. DART SPEC. M17-4-B
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: ENGRAVE WITH DART P/N "D3674-045" WITH 0.15 HIGH LETTERS TO A  
MAX DEPTH OF 0.010 IN AREA SHOWN.
- 7) IDENTIFICATION: SCRIBE B/N PER QSI 044 6.4
- 8) WEIGHT: 0.24 lbs
- 9) ALL NON DIMENSIONED FEATURES PER CAD FILE "D3674-5RevB.STP/SLDPRT"

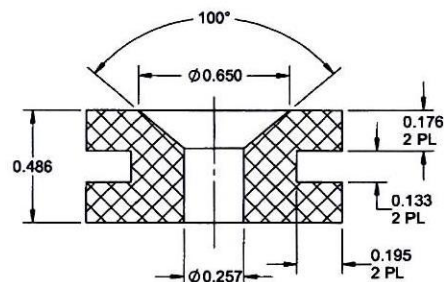
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2016-07-26

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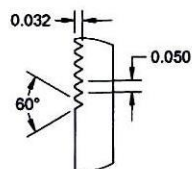
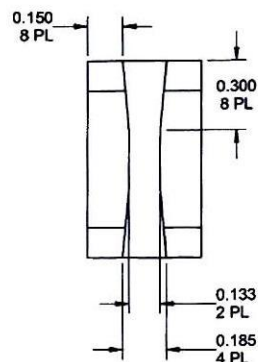
|                                                                                                                                                                                                                                    |          |                                        |              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------|--------------|
| DESIGN                                                                                                                                                                                                                             | AJS      | <b>DART AEROSPACE LTD</b>              |              |
| DRAWN                                                                                                                                                                                                                              | AJS      | HAWKESBURY, ONTARIO, CANADA            |              |
| CHECKED                                                                                                                                                                                                                            | MB       | DRAWING NO.                            | REV. B       |
| MFG. APPR.                                                                                                                                                                                                                         | RQ       | D3674                                  | SHEET 7 OF 8 |
| APPROVED                                                                                                                                                                                                                           | WM       | TITLE                                  | SCALE        |
| DE APPR.                                                                                                                                                                                                                           | DS       | ROLLER BRACKET ASSEMBLY                | NTS          |
| DATE                                                                                                                                                                                                                               | 16.06.01 | COPYRIGHT © 2008 BY DART AEROSPACE LTD |              |
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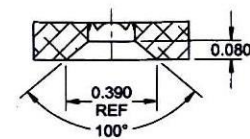
**D3674-7 GUIDE**



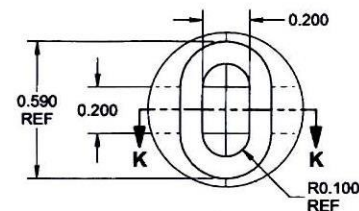
**SECTION L-L**



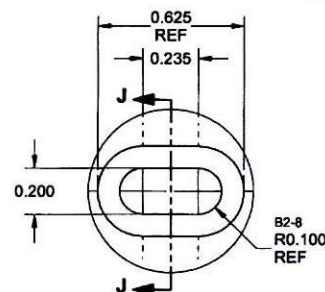
**DETAIL C**



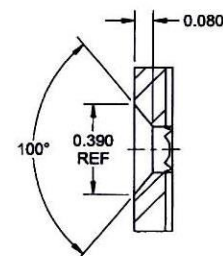
**SECTION K-K**



**DETAIL D**  
C2-5  
SLOT DETAIL 4PL  
SCALE 2X



**DETAIL F**  
C3-4  
C6-5  
B6-7  
SLOT DETAIL 3PL  
SCALE 2X



**SECTION J-J**

**NOTES:**

- 1) MATERIAL: DELRIN II 150E OR ACETRON GP ACETAL, BAR  
REF DART SPEC M-DELRIN-B
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER DART QSI 044
- 7) WEIGHT: 0.02 lbs

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2016-07-26

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|            |          |
|------------|----------|
| DESIGN     | AJS      |
| DRAWN      | AJS      |
| CHECKED    | MB       |
| MFG. APPR. | RQ       |
| APPROVED   | WM       |
| DE APPR.   | DS       |
| DATE       | 16.06.01 |

|                                                                                                                                                                                                                                                                                |                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                       |                        |
| DRAWING NO.<br><b>D3674</b>                                                                                                                                                                                                                                                    | REV. B<br>SHEET 8 OF 8 |
| TITLE<br><b>ROLLER BRACKET ASSEMBLY</b>                                                                                                                                                                                                                                        | SCALE<br>NTS           |
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|                                                 |  |                     |         |
|-------------------------------------------------|--|---------------------|---------|
| <b>DART AEROSPACE LTD</b>                       |  | <b>Work Order:</b>  | 150039  |
| <b>Description:</b> <i>Roller bracket assy.</i> |  | <b>Part Number:</b> | D3674-4 |
| <b>Inspection Dwg:</b> D3674 <b>Rev:</b> B      |  | Page 1 of 1         |         |

### INSPECTION SHEET

| Drawing Dimension | Tolerance           | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|-------------------|---------------------|------------------|--------|--------|----------------------|----------|
| 0.162             | +/- .010            | 0.162            | ✓      |        | Vern                 | GA-13    |
| 4.26              | +/- .030            | 4.260            | ✓      |        | "                    | "        |
| 1.89              | +/- .030            | 1.891            | ✓      |        | "                    | "        |
| 1.16              | +/- .030            | 1.160            | ✓      |        | "                    | "        |
| 2.08              | +/- .030            | 2.080            | ✓      |        | "                    | "        |
| 0.36              | +/- .030            | 0.360            | ✓      |        | "                    | "        |
| R0.25             | +/- .030            | R0.250           | ✓      |        | R-6                  | ref.     |
| R0.19             | +/- .030            | R0.188           | ✓      |        | "                    |          |
| R0.19             | +/- .030            | R0.188           | ✓      |        | "                    |          |
| R0.25             | +/- .030            | R0.250           | ✓      |        | "                    |          |
| R0.13             | +/- .030            | R0.125           | ✓      |        | "                    |          |
| φ0.392            | +0.002 / -0.000     | φ0.3933          | ✓      |        | Mic                  | GA-03    |
| R0.29             | +/- .030            | R0.290           | ✓      |        | R-6                  | ref.     |
| R0.50             | +/- .030            | R0.500           | ✓      |        | "                    | "        |
| 3.954             | +/- .010            | 3.950            | ✓      |        | "                    | "        |
| 0.162             | +/- .010            | 0.163            | ✓      |        | Mic                  | GA-03    |
| 0.995             | +/- .010            | 0.996            | ✓      |        | H-6                  | 31006    |
| φ0.201 X .100     | +/- .010 / +/- .010 | φ0.200 X .099    | ✓      |        | Vern                 | GA-13    |
| 1.18              | +/- .030            | 1.180            | ✓      |        | "                    | "        |
| 0.10              | +/- .030            | 0.100            | ✓      |        | H-6                  | 31006    |
| 5.323             | +/- .010            | 5.321            | ✓      |        | H-6                  | 31006    |
| 5.036             | +/- .010            | 5.035            | ✓      |        | "                    | "        |
| 2.49              | +/- .030            | 2.485            | ✓      |        | "                    | "        |
| 2.385             | +/- .010            | 2.385            | ✓      |        | "                    | "        |
| 1.555             | +/- .010            | 1.555            | ✓      |        | "                    | "        |
| 0.265             | +/- .010            | 0.265            | ✓      |        | Vern                 | GA-13    |
| 13°               | +/- 1/2°            | 13°              | ✓      |        | Angle M.             | CNC-17   |
| 11°               | +/- 1/2°            | 11°              | ✓      |        | "                    | "        |
| 0.795             | +/- .010            | 0.792            | ✓      |        | Vern                 | GA-13    |
| R0.25             | +/- .030            | R0.250           | ✓      |        | R-6                  | ref.     |
| R0.19             | +/- .030            | R0.188           | ✓      |        | "                    | "        |
| 0.182             | +/- .010            | 0.180            | ✓      |        | Vern                 | GA-13    |

|                                                     |                                       |                      |
|-----------------------------------------------------|---------------------------------------|----------------------|
| <b>Measured by:</b> <i>DA</i> <small>DAS 08</small> | <b>Checked by:</b> <i>[Signature]</i> | <b>QC Inspector:</b> |
| <b>Date:</b> 16/08/30 <small>9-89</small>           | <b>Date:</b> 16-9-6                   | <b>Date:</b>         |

|                                                |              |
|------------------------------------------------|--------------|
| <b>Engineering Approval:</b><br>(If necessary) | <b>Date:</b> |
|------------------------------------------------|--------------|

| Rev | Date     | Change    | Revised by | Approved |
|-----|----------|-----------|------------|----------|
| B   | 14.07.31 | New Issue | KJ         |          |



